1. PURPOSE AND SCOPE

The purpose of these guidelines is to provide a standardized format for the processes of land application and surface disposal of treated sewage sludge/biosolids in Tennessee, hereafter referred to as biosolids. These guidelines are for the preparers, appliers, and users involved in the beneficial use (land application) and disposal of biosolids. **This document is not to be construed as State Regulations, but is solely intended to provide guidance and be a source of reference to Federal sewage sludge regulations and industry professionals in an effort to safeguard human health, agricultural resources, and the environment of Tennessee.**

The content of these guidelines is based on the United States Environmental Protection Agency (U.S. EPA), Title 40, Code of Federal Regulation, Part 503, (40 CFR 503) - Standards for the Use or Disposal of Sewage Sludge; recommended practices of the Tennessee Agricultural Extension Service, and the Clean Water Act (CWA) as amended in 1977 and the 1976 Resource Conservation and Recovery Act (RCRA). 40 CFR 503 is a self-implementing Federal regulation, and users of these guidelines should obtain a copy of the 40 CFR 503 document to insure compliance with this regulation.

Tennessee is not delegated by the U.S. EPA as the legal authority to enforce the 503 regulation. However, there are requirements for biosolids use and disposal in each National Pollutant Discharge Elimination System (NPDES) permit issued by Tennessee for the state's permitted wastewater treatment plants (WWTP). Persons responsible for compliance with those permits should refer to their individual NPDES permit for those requirements.

2. LAND APPLICATION SITE APPROVAL PROCEDURE

A. General

Approval of new sites for land application of biosolids by the Tennessee Department of Environment and Conservation's Division of Water Pollution Control (TDEC-DWPC) is a lengthy, yet proactive procedure. The purpose of a land application site approval is to ensure that proper application locations are used and that procedures for biosolids applications are being followed; it is also a method to track the locations used for biosolids application throughout the State.

Definitions

I. *Preparer* is the entity: either the person, treatment plant, or municipality involved in the generation of domestic sewage sludge/biosolids from treatment processes at a WWTP or the entity that derives a material from the biosolids. There are specific requirements for the preparer of biosolids in the 40 CFR 503, regulation.

II. *Applier* is the person performing the physical process of applying the biosolids to the land, or disposing of biosolids in a surface disposal unit. Or, they may be the contracted entity for the WWTP or municipality to perform the application or disposal.

III. *User(s)* that person, or persons involved in the beneficial use of land application, or surface disposal of treated biosolids. Users are also considered those who may change the composition of biosolids by mixing with other materials for the purpose of composting.

IV. *Sewage Sludge* is the solid, semi-solid, or liquid residue generated during the treatment of domestic sewage.

V. *Biosolids* specifically refers to sewage sludge that has undergone treatment and meets federal regulations and state standards for beneficial use (land application) and

disposal.

VI. *High Quality* (*HQ*) *biosolids* is an unofficial term used for biosolids that have met either the:

a) low-pollutant limits for metals found in Tables 1 and 3 of 40 CFR §503.13(b), the Class A pathogen reduction requirements of 40 CFR §503.33(a), and uses the vector attraction reduction options in 40 CFR §503.33(b)(9)(i)-(iii), or 40 CFR §503.33(b)(10)(i) and (ii); or,

b) meets the pollutant limits for metals found in Tables 1 and 3 of 40 CFR §503.13(b), one of the three Class B pathogen reduction options from 40 CFR §503.32(2), (3), or (4), and meets one of the first ten (10) vector attraction reduction options found in 40 CFR §503.33, and follows the site restrictions found in 40 CFR §503.32(b)(5)(i) through (viii) when land applied.

VII. *Exceptional Quality (EQ) biosolids* is an unofficial term which characterizes the biosolids product as having pollutant concentrations for metals below Table 3 values, have met one Class A pathogen reduction requirement, and one of the first eight treatment processes for vector attraction reduction (VAR). EQ biosolids must meet ***all*** of these requirements to be considered as virtually unregulated by the U.S. EPA and Tennessee's DWPC. To be considered as EQ, the biosolids product must comply with the following parts of 40 CFR 503:

a) metals: less than Tables 1 and 3 of 40 CFR §503.13(b),

b) pathogens: Class A per 40 CFR §503.32 (a)(1) and the requirements in either of the alternatives in 40 CFR §503.32(a)(3) through (a)(8),

c) vector attraction reduction: 40 CFR §503.33 options (b)(1) through (b)(8).

C. Site Approval Procedure for Land Application

HQ biosolids is most commonly applied to the land, for beneficial use when processed in compliance with 40 CFR 503. It is not acceptable for application to lawns or home gardens.

Site approval for initial land application of HQ biosolids in Tennessee is administered using the following procedure. Reevaluation of the site after the first year of use may require updating some of the same information. A letter requesting a site approval for land application from the preparer, applier, or user must be sent to the appropriate Environmental Assistance Center (EAC) for their geographic area (see Exhibit A).

The following list of minimum information is required for a land application site approval:

1. Site name, and/or description of the requested site. (Example: "Dover Farms", or "hay field of Dover Farms")

2. A scaled map, either a tax map to delineate property/site boundaries, or a USGS topographic map. Maps may also be obtained from the local Farm Service Agency. Water features such as drinking water wells or other supply wells (if known), lakes, ponds, creeks, sinkholes, drainage ways, etc., in a one mile radius should be delineated on the map. The map should also include the latitude and longitude to locate the site.

3. Site history as available; have biosolids been previously applied to this site? What is the current usage of the site? What is the intended usage of the site after biosolids are applied? If this information is not available soil sampling may be required to establish a baseline of metals content of the soil.

4. Total area of the intended application site in acres, or hectares. Requested area should

be 1 acre, or more.

5. Current analytical data, no older than 3 months, of the biosolids intended for application. This may be in addition to the sampling required in the NPDES permit for the wastewater treatment plant providing the biosolids. This data shall include the priority pollutant metals as listed in the latest revision of 40 CFR 503, the pathogen reduction method used and results, and the vector attraction method applied and results. It shall also include the test results for total kjeldahl nitrogen (TKN), nitrate-nitrite-N, phosphorous, potassium, ammonia, total percent moisture and total percent solids, pH and the temperature of the sample in-vessel at the time the sample(s) are taken for testing. Include the chain-of-custody report with the laboratory report.

6. Agronomic loading rate calculations. Submit calculations based on Nitrogen (N) for the intended crop(s) to be grown, and the corresponding amount of biosolids necessary to meet the crop(s) needs. (Submit the worksheet in Exhibit B.)

7. Application method and physical form of the biosolids for application, e.g., "Terra Gator" or other manufacturer equipment for liquid application or manure spreader for de-watered application.

8. A written procedure of methods to be employed to ensure proper application of biosolids. Who will apply the biosolids, and how will the site be controlled after application?

9. Permission or disclosure letter from the landowner to apply biosolids to the land. The permission letter should state that the landowner has been informed of site restrictions associated with land application of biosolids. Include contact information such as telephone number and address.

Personnel from the appropriate EAC familiar with the biosolids program will then be assigned to follow up on the request and perform the field investigation of the requested site(s). For some site requests, especially mine reclamation sites, the Division of Water Pollution Control personnel may seek the assistance of the Division of Natural Heritage for verification that no threatened, endangered, or listed species have been located within a one (1) mile radius of the area, and within a 15 mile surface water pathway of the area that may be compromised by the biosolids application. This would apply to sites receiving HQ Biosolids. Refer to the management practices of 40 CFR §503.14.

Following a thorough investigation of the data, the site, and the surrounding area has been performed the investigating personnel will mathematically verify calculations for the agronomic loading rate. See section 4.C. “Application rates for Nitrogen”. The approved site will be assigned a statewide tracking number (LACOXXXXX) by the approving investigator for the county in which the land application site is located. This number will indicate a land application site, (LA); locate the site by the two-digit county code number, (CO); and, the sequential five digit approved site number, starting with 00001. If there are multiple areas of a specific site approved, a number starting with the letter “A” will designate the multiple areas. (Example: Bailey Farms Sites A, B, C in Davidson County. The individual areas will be designated as LA19A0001, LA19B0001, and LA19C0001.) It is imperative that an accurate location map is included in the approval package. (See Exhibit G for a list of the two-digit county codes.)

A letter accepting the requested land application site will be sent to the requestor of the approval and a complete duplicate copy of the approval package will be sent to the central DWPC office in Nashville. If the requested site is not approved for land application of biosolids, no tracking number will be assigned, but a copy of the denial letter is to be forwarded to the central DWPC office.

D. Exceptional Quality (EQ) Biosolids

Exceptional Quality (EQ) biosolids is not a term explicitly defined by the 40 CFR 503 rule. However, the 503 regulations require that the preparer of EQ biosolids monitor production by scheduled laboratory analyses, and keep records of the quantities prepared. These records must include pathogen reduction and vector attraction reduction validation. To maintain consistency, DWPC will require the same level of record keeping. The preparer is requested to notify the Division in writing of all locations known, past and present, where EQ biosolids are disposed, or applied in bulk quantity, so that a site tracking number may be assigned.

Bulk quantity is defined as a quantity of biosolids that is not sold or given away in a bag or other container for application to the land.

3. GENERAL RECOMMENDATIONS FOR BIOSOLIDS USE AND DISPOSAL

A. General

The rules of 40 CFR 503 et seq. establish minimum standards for the land application and surface disposal of biosolids. There are additional program elements for all biosolids systems to consider so that the process of preparation and application of biosolids is conducted in a publicly acceptable and non-controversial manner.

B. Aesthetic Quality of Biosolids

Facilities treating biosolids for application to the land should have adequate screening or other processes that remove floatables, plastics, and other similar undesirable materials from the biosolids stream.

C. Application to Slopes

Biosolids can be applied to sites that have sloping topography. A slope is defined as the difference in the rise of land over the run, or distance traveled. It is also considered an incline that rises or declines. The limiting factors for applying biosolids to slopes includes the effective vegetative buffer zone, percent solids of the material, the application method (surface or sub-surface), and the safety of the equipment operators performing the application. In general, slopes exceeding 8% should not receive biosolids application, except where it will be incorporated into the soil by an approved method; then, slopes up to 15% may be acceptable. Biosolids should not be applied to a sloping area, regardless of degree, where the possibility for direct migration of the biosolids into any waters of the state is great. Refer to Buffer Zones below.

Waters of the state is defined as: "Waters means any and all water, public or private, on or beneath the surface of the ground, which are contained within, flow through, or border upon Tennessee or any portion thereof except those bodies of water confined to and retained within the limits of private property in single ownership which do not combine or effect a junction with natural surface or underground waters."

If actual application of biosolids presents a runoff situation, application shall be halted immediately. The applier is responsible for notifying the closest, local, DWPC-EAC personnel within 24 hours. Proper management to prevent any migration of biosolids from the approved application site shall be implemented immediately, and all application shall stop until the site and application method can be re-evaluated by a representative of the DWPC. Should there be any question about the actual biosolids' application the decision to continue application or to halt the application indefinitely will remain at the discretion of the DWPC personnel performing the inspection.

D. Application in Inclement Weather

At no time shall biosolids be placed, or disposed of when there is an obvious threat of inclement weather, e.g., rain, or snow. Biosolids shall not be placed on land that is saturated, flooded, frozen, or snow covered. Biosolids shall not be placed in a wetland or other waters of the state. Refer to Setbacks and Buffer Zones below.

E. Setbacks

There are concerns relating to the application of biosolids to the land that are in addition to 40 CFR 503, particularly with regard to how close the biosolids may be applied to adjacent dwellings, property lines, public roadways, etc. Preparers and appliers of biosolids should consider standard setbacks from dwellings, property lines, public roadways, etc., in order to protect public health and the environment.

Recommended Minimum Setbacks and Methods of Application for Sensitive Areas

METHOD OF APPLICATION	SETBACK DISTANCE, FEET (ft.)
Incorporation or Injection	250 ft. from dwelling 20 ft. from roadways* and property boundaries 100 ft. from surface water
Land-spreading	250 ft. from dwelling 20 ft. from roadways * and property boundaries 200 ft. from surface water
Spray Application: (from outer boundary of spray)	500 ft. from dwelling 200 ft. from roadways * and property boundaries 200 ft. from surface water
Tank Truck: (use a spreader bar or plate)	500 ft. from dwelling 20 ft. from roadways * and property boundaries 200 ft. from surface water

*Any spillage of biosolids on public roads, or highways of delivery routes to application sites shall be cleaned up by the end of the day of application for each day spillage has occurred. Cleanup shall be the responsibility of the driver of the biosolids disposal vehicle.

F. Buffer Zones

The area between water features and the biosolids application site shall have appropriate vegetative cover to impede runoff, and shall be consistent with Best Management Practices (BMP). Vegetative cover (e.g. grass) minimizes the potential for biosolids sediment runoff from the application site and into the water feature.

A *water feature* may be understood to mean a water transporting ditch, conveyance, creek, stream, river, pond, bog, lake, sink hole, or other similarly described “water feature”.

Best Management Practices (BMP) are defined as those practices of application consistent with

normal agricultural fertilizer application practices and those management practices found in 40 CFR §503.14.

Minimum Buffer Zones[1]

LAND SLOPE	SETBACK DISTANCE, FEET
0-8%	100 ft
8-15%	200 ft.

G. Setbacks from Water Wells

Prior to the application of biosolids to a location that is in close proximity to a drinking water well or other supply well, consideration should be given to performing bacteriological tests on the well water. Additionally, the owner of the well should be contacted prior to the biosolids application to acquire information about the condition and quality of the well, particularly if it is prone to surface water impacts. If a well is suspected to be subject to surface water impacts, the application of biosolids in close proximity to that well without further investigation of the recharge location of the aquifer supplying the well is cautioned. If there is any question concerning the protection of a drinking water well, or other well, contact the Tennessee Division of Water Supply at 1-888-891-TDEC (1-888-891-8332) for further information about recharge zones and impact studies.

Recommended Setback Distances for Wells not Subject to Surface Water Impacts

Public Drinking Water Wells	1000 ft., All Types Biosolids
Individual Homeowner Wells	250 ft., Class A Biosolids
Individual Homeowner Wells	500 ft., HQ Biosolids

H. Silvaculture and Reclamation

The application of biosolids to forests, tree farms, and for the reclamation of strip-mined lands is encouraged by the United States Environmental Protection Agency (U.S. EPA) and TDEC. The properties of the biosolids material make it a desirable soil amendment for these types of end uses. However, the application of biosolids to such areas also requires strict management practices in order to prevent, or lessen the possibility of pollution of waters of the state. The DWPC will provide technical assistance in the way of contacting the U.S. EPA for guidance if such programs are considered. Note: the appropriate authority of the Region 4 U.S. EPA must approve any application of biosolids that will exceed the normal agronomic application rates necessary to accompany the reclamation process of a site. See the list of contacts at the end of this document.

I. Storage

Storage of biosolids shall be limited by the provision of 40 CFR §503.20 and the EPA Guide to Field Storage of Biosolids, publication number EPA/832-B-00-007, July 2000.

[1] For questions pertaining to possible streamside erosion that may occur during site preparation please refer to the Riparian Restoration and Streamside Erosion Control Handbook, provided by the Nonpoint Source Water Pollution Management Program for the State of Tennessee.

4. SOIL TESTING

A. General

Prior to the land application of biosolids, obtaining information on the existing soil pH, nitrogen (N), phosphorus (P), and potassium (K) may be required for the purpose of a land application site approval.

The requestor of the land application site approval shall perform agronomic loading rate calculations. Refer to sections C. and D. below for Nitrogen and Lime Limiting Calculations respectively. These calculations will be reviewed by TDEC during the site approval process.

B. pH

If the pH of the soil is less than 6.1 standard units (SU), the site should be limed in order to increase the pH to a minimum of 6.5 SU. This will ensure that the low quantities of pollutant metals in the biosolids will remain insoluble in the soil matrix and will not migrate to the crop or to groundwater. The maximum allowable pH of the soil is 8.5 SU.

C. Nitrogen

Biosolids contain valuable plant nutrients, with nitrogen (N) being predominant. The loading rate based on nitrogen shall be used for application of biosolids. The "Agronomic Rate Calculations for Nitrogen" worksheet (Exhibit B) will give guidance for the calculation of the agronomic loading rate with respect to nitrogen, and must be used when submitting a request for a land application site approval. The laboratory analysis used for this nitrogen calculation must be submitted with this form at the time of the request.

The application of biosolids in bulk quantities to the land should be performed in a manner consistent with normal farming, or best management practices (BMP). The county Agricultural Extension Service can provide instruction on these practices and should be contacted when application rates are being calculated for any type of soil amendment. Although, over-application of other nutrients such as phosphorus is a concern, nitrogen shall remain as the nutrient that agronomic loading rates will be based on until further notice from the U.S. EPA.

D. Lime Limiting Calculations

For biosolids processes that use any form of lime stabilization, 10 dry metric tons of biosolids per acre will be the maximum allowable application rate. Note: this maximum application rate may be adjusted to a lesser amount at the discretion of the approving DWPC personnel. It is recommended that the county Agriculture Extension Service be consulted for guidance on calculations when an application rate is based on a lime-stabilized biosolids. (Refer to the Index for a list of contacts.)

Soil pH is an important characteristic that must be evaluated prior to applying biosolids augmented with lime. Plants grown in soils with low pH (acid soil) absorb metals at a higher rate than in non-acid soil. For this reason, the soil pH should be maintained at 6.5 SU to a maximum of 8.5 SU, and an annual determination of this parameter should be made. Lime application rates for pH adjustment of acid soil should be determined by the county Agricultural Extension Service and must be followed if such a site is to be utilized. (Refer to the Index for a list of contacts.)

5. LAND APPLICATION RATES AND POLLUTANT LIMITS

A. Agronomic Loading Rates

Agronomic loading rate calculations shall be submitted based on the Nitrogen (N) in the biosolids for the intended crop(s) to be grown, and the corresponding amount of biosolids

necessary to meet the crop(s) needs. Laboratory data sheets must be included in all correspondence related to agronomic loading rates. (Submit the worksheet in Exhibit B.)

B. Cumulative Pollutant Loading Rates

When one or more pollutant metal concentrations found in Table 3 of 40 CFR §503.13(b) is exceeded, tracking of the cumulative pollutant loading rates for only those pollutants shall begin if the final use of bulk biosolids is land application for agricultural purposes, public contact site, forest, or a reclamation site. For bulk application sites receiving biosolids subject to the cumulative pollutant loading rates for heavy metals in 40 CFR §503.13 Table 2, a soil sample should be collected from the site every 5 years and analyzed for the parameters in the table below. These soil tests will serve to verify the amount of heavy metals that have accumulated in the soil, which can be compared to the computed values from the cumulative loading rate calculations. This testing may be in addition to the initial soil test required for an initial site approval for land application. All analyses for the following pollutant metals shall be reported in milligrams per kilogram (mg/kg) on a dry weight basis.

Arsenic	Mercury
Cadmium	Nickel
Copper	Selenium
Lead	Zinc

Molybdenum parameters apply only to 40 CFR §503.13, Table 1 for ceiling concentrations.

C. Heavy Metals – Pollutant Limits

Table of Regulations that apply to the Final Land Use of Biosolids from 40 CFR 40 CFR §503.13 (b).

Bulk Quantity or Sold or Given away in a Bag or Container	**Table 1**	**Table 2**	**Table 3**	**Table 4**
All Land	X			
Bulk Quantity				
Agricultural		X	X	
Forest		X	X	
Reclamation site[1]		X	X	
Public contact site		X	X	
Lawn or Home Garden[2]			X	
Sold or given away in a Bag or Container				
All Land			X	X[3]

[1] Exceeding any limits of application rates for land Reclamation sites will be at the discretion and direction of the appropriate official of the Region 4, U.S. EPA.

[2] Biosolids must meet the requirements that define EQ biosolids when used for this purpose.

[3] May be used in place of Table 3 requirements where the product of the concentration of each pollutant in the biosolids and the annual whole sludge application rate for the sludge shall not cause Table 4 to be exceeded.

The following pollutant limits scenarios are taken directly from 40 CFR §503.13 except where referenced to Tennessee's DWPC. The majority of these requirements apply to the municipality e.g., the wastewater treatment plant, treating sewage sludge and processing biosolids for beneficial use or disposal. For further clarification contact the U.S. EPA directly.

When the final use of **bulk** biosolids is land application for agricultural purposes or biosolids is sold or given away in any type container for land application the ceiling concentrations for any pollutant metals found in Table 1 of 40 CFR §503.13(b) shall not be exceeded.

When the final use of **bulk** biosolids is land application for agricultural purposes, public contact site, forest, or a reclamation site the metals pollutant concentrations of Table 3 of 40 CFR §503.13(b) shall not be exceeded. At the first occurrence of exceeding any pollutant metal concentration found in Table 3 of 40 CFR §503.13(b) the DWPC shall be notified prior to any further application.

When one or more pollutant metal concentrations found in Table 3 of 40 CFR §503.13(b) is exceeded, tracking of the cumulative pollutant loading rates for only those pollutants shall begin if the final use of **bulk** biosolids is land application for agricultural purposes, public contact site, forest, or a reclamation site. Application of biosolids may continue; however, the cumulative pollutant loading rates (CPLR) for any metal pollutant shall not exceed Table 2 of 40 CFR §503.13(b).

When the final use of **bulk** biosolids is a lawn, or a home garden, pollutant concentrations of all metals found in Table 3 of 40 CFR §503.13(b) shall not be exceeded. These limits are lower than the limits found in Table 1 of 40 CFR §503.13(b). (Note: it is recommended that only EQ biosolids be used for this purpose.)

When the final use of biosolids is land application and the biosolids is sold or given away in a bag or any other type container the concentrations for any metals found in Table 3 of 40 CFR §503.13(b) shall not be exceeded. This is for biosolids that have met Class A Pathogen Reduction requirements. Or, the product of the concentration of each pollutant in the sludge and the annual whole sludge application rate (AWSAR) for the sludge shall not cause the annual pollutant loading rate (APLR) for any of the metals found in Table 4 of 40 CFR §503.13(b) to be exceeded.

Equation 1, as shown below, shall be used to calculate the annual whole sludge application rate (AWSAR) for each of the metals listed in Table 4 of 40 CFR §503.13(b). The AWSAR for the biosolids will be the lowest AWSAR calculated from Equation 1.

$$\textbf{AWSAR}\ (\text{metric tons/hectare/year}) = \frac{\text{APLR (from Table 4 of 40 CFR §503.13)}}{(\text{concentration of metal}) \times 0.001} \qquad \text{Eq.(1)}$$

Where: APLR = Annual Pollutant Loading Rate.

$$\textbf{APLR}\ (\text{kilograms/hectare/year}) = C \times \text{AWSAR} \times 0.001 \qquad \text{Eq.(2)}$$

Where: C = Pollutant concentration in milligrams per kilogram of total solids (dry weight basis).
0.001 = A conversion factor.
The appropriate unit conversions must be applied for this calculation.
Refer to Exhibit F for some frequently used conversion factors.

6. SURFACE DISPOSAL OF BIOSOLIDS

A. General

There are specific requirements for the disposal of sewage sludge or biosolids in, or on a surface disposal site. The limitations of these Guidelines makes it imperative that 40 CFR 503,

Subpart C is examined thoroughly for these specific requirements.

Disposal at a *surface disposal site* is a method of disposing of sewage sludge, not necessarily biosolids, in units or on land, also called “monofills”, that is designated specifically for this practice. A sewage sludge/biosolids surface disposal site is an area of land that contains one or more active units. A “unit” may be defined as a small parcel of land designated for final disposal. An “active unit” is a disposal unit that is not closed. This method should be considered only as a viable option when land application or landfilling of biosolids is not practical or is not cost effective.

B. Site Approvals for Surface Disposal of Sewage Sludge/Biosolids

Site approvals for disposal at a surface disposal site of sewage sludge/biosolids in Tennessee will be administered using the following procedure. A letter requesting a site approval for disposal at a surface disposal site from the municipality, preparer, applier, or user must be sent to the appropriate Environmental Assistance Center (EAC) for their geographic area (see Exhibit A).

The following is a list of minimum information required for a surface disposal site approval, it should not be misunderstood to be the only requirements for operating a surface disposal site:

1. Site name, and/or description of the requested site.

2. A scaled map, either a tax map or a USGS topographic map. Water features such as drinking water wells or other supply wells (if known), lakes, ponds, creeks, sinkholes, drainage ways, etc., in a one (1) mile radius from the site should be delineated on the map. The map should also include the latitude and longitude to locate the site.

3. Site history as available; have biosolids been previously disposed at this site? What is the current usage of the site? What is the intended usage of the site after biosolids are disposed of?

4. Total site area in acres, or hectares. Requested area should be 1 acre, or more.

5. Current analytical data, no older than 3 months, of the biosolids intended for disposal. This may be in addition to the sampling required in the National Pollutant Discharge Elimination System (NPDES) permit for the wastewater treatment plant providing the biosolids. This data shall include the pollutant metals (arsenic, chromium, and nickel) as listed in the latest revision of 40 CFR §503.23, the pathogen reduction method and results, and the vector attraction method and results. It shall also include the results for total kjeldahl nitrogen (TKN), nitrate-nitrite-N, ammonia, total percent moisture and total percent solids, pH and the temperature of the sample in-vessel at the time the sample(s) are taken for testing.

6. Disposal method and physical form of the biosolids.

7. How will the site be managed and when will the site be closed? The owner/operator shall submit in writing an operations plan for the site with the initial approval request package. A closure and post-closure plan for the surface disposal site shall be submitted 180 days prior to the date that the active sewage sludge unit closes. Refer to 40 CFR §503.22 General Requirements.

8. Permission or disclosure letter to dispose of the sewage sludge/biosolids to the site from the landowner. The permission letter should state that the landowner has been informed of site restrictions associated with biosolids disposal. Include contact information such as telephone number and address.

There are specific rules for this practice; EPA regulations for surface disposal of sewage sludge can be found in Subpart C of 40 CFR 503. It should be noted that the pollutant concentration parameters are based on restrictions applied to an active sewage sludge unit that does not have a liner and leachate collection system. See Table 1 of 40 CFR §503.23.

There are more restrictive rules that apply to an active sewage sludge unit that does not have a liner and leachate collection system where its unit boundary to the property line is at a distance that is less than 150 meters. See Table 2 of 40 CFR §503.23. Definitions for all of these terms can be found in 40 CFR §503.21.

Personnel from the appropriate EAC familiar with the biosolids program will then be assigned to follow up on the request and perform the field investigation of the requested site.

After a thorough investigation of the data, the site, and the surrounding area has been performed the approved site will be assigned a statewide tracking number (SDCOXXXXX) by the approving investigator for the county in which the land application site is located. This number will indicate a surface disposal site, (SD); locate the site by the two-digit county code number, (CO) and then the sequential five-digit approved site number, starting with 00001. A surface disposal site shall receive only one number to track its location; individual "unit" numbers will not be necessary. It is imperative that an accurate location map is included in the approval package. (See Exhibit G for a list of the two-digit county codes.)

A letter accepting the requested surface disposal site will be sent to the requestor of the approval and a complete duplicate copy of the approval package will be sent to the central DWPC office in Nashville. If the requested site is not approved for surface disposal of sewage sludge/biosolids no tracking number will be assigned, and a copy of the denial letter is to be forwarded to the central DWPC office.

B. Ground Water

A facility such as a surface disposal site/unit or the practice of biosolids-only monofilling shall not pollute an aquifer or ground water beyond the monofill or surface disposal site boundary classified pursuant to Tennessee State Statutes. Further discussion of groundwater monitoring is beyond the scope of this guideline and should be addressed with the Tennessee Department of Environment and Conservation, Division of Water Pollution Control (TDEC-DWPC). Division staff may be contacted by calling 1-888-891-8332 or 1-888-891-TDEC.

C. Groundwater Testing

In cases where a biosolids application program is determined to pose a potential threat to groundwater, or for the protection of public health and the environment, the Division of Water Pollution Control (DWPC) may require monitoring of groundwater on a re-occurring schedule. This requirement will be determined on a case-by-case basis and may involve other divisions of the Tennessee Department of Environment and Conservation, and may also require fees to process any necessary permits.

D. Landfills and Composting

Practices such as composting with biosolids, or placing biosolids in a municipal solid waste landfill for final disposal are regulated by the Tennessee Department of Environment and Conservation, Division of Solid Waste Management (TDEC-DSWM). Division staff may be contacted about these practices by calling 1-888-891-8332 or 1-888-891-TDEC.

Placing biosolids on closed landfill cells to assist in vegetative re-growth is considered land application and shall be subject to the same requirements as stated in Section 2., above.

7. RIGHTS AND ACCEPTANCE

Analytical data and calculations for agronomic loading rates must be readily available at any time from the requestor of a site approval for land application of biosolids, or for disposal at a surface disposal site for inspection purposes by the DWPC personnel. Analytical data is to be included in the Annual Report submitted to the Division by the entity, or treatment facility providing the biosolids product in accordance with their NPDES permit.

Tennessee DWPC reserves the right to modify any or all of the provisions listed in these guidelines in order to comply with the 40 CFR 503 rule; and to meet the specific needs of a sewage sludge/biosolids preparer, applier, land application site, or surface disposal site, so that in all cases the public health and the environment are adequately protected.

Tennessee DWPC reserves the right to rescind site approval(s) for land application and/or surface disposal sites when any improper use or disposal of biosolids is discovered, or for any reason it deems necessary to protect human health or the environment. This notice will be in written form and delivered by the United States postal service as certified, return receipt mail.

The U.S. EPA has the final authority to accept or reject any or all provisions held in these guidelines.